

REMARKS

Applicants appreciate the detailed examination evidenced by the Official Action mailed October 30, 2003 (hereinafter the Official Action). Applicants also appreciate the indication that Claim 17 includes patentable subject matter and would be allowable pending resolution of the rejection of this claim under 35 U.S.C. § 112, first paragraph. *Official Action, page 12.*

Applicants have made minor amendments to some of the independent claims per the Examiner's suggestions and to further clarify the scope of the claimed invention. Applicants also have provided formal drawings including a new Figure 2 bearing a prior art legend and have amended the specification as requested by the Examiner.

With regard to the rejections under 35 U.S.C. § 112, Applicants have provided reasoning herein why the claims, as written, comply with § 112, first paragraph. With regard to the rejections under 35 U.S.C. § 103, Applicants respectfully traverse the rejections as Dent is not a reference that can be properly used under § 103. Furthermore, Secord, and the other cited references, do not disclose or suggest the recitations of the present claims for at least the reasons discussed herein. Applicants, therefore, respectfully request the withdrawal of all rejections and the allowance of all claims.

A new power of Attorney has been provided herewith.

Applicants note that a Revocation of Power of Attorney and New Power of Attorney by Assignee (naming the Applicants' undersigned representative) is submitted concurrently herewith. Applicants respectfully request that Applicants' representative be made of record in the present application.

New formal drawings are provided concurrently herewith.

The drawings have been objected to under MPEP 608.02(g). *Official Action, page 2.* In response, Applicants have provided formal drawings, which replace the informal drawings that accompanied filing of the application. Applicants have added

the legend "Prior art" to Fig. 2 as requested by the Examiner. *Official Action*, pg. 2.
In view of the above, Applicants respectfully requests that the objections to the drawings be withdrawn.

The amended claims comply with 35 U.S.C. § 112, first paragraph.

Claims 13-17 stand rejection under 35 U.S.C. § 112, first paragraph. *Official Action*, pg. 3. In particular, the Official Action states that Claim 13 recites operations performed in the time domain, whereas the specification includes no such disclosure. Respectfully, Applicants maintain that the specification provides support for the subject matter of Claims 13-17 as, for example, the claims are considered part of the specification and therefore may provide support under § 112, first paragraph. Moreover, Applicants respectfully direct the examiner's attention to Equation 24 on pg. 13 of the specification as filed, which Applicants respectfully submit would enable one of ordinary skill in the art to perform the operations outlined in Claims 13-17 in the time domain.

However, in order to further clarify the subject matter recited in Claims 13-17, Applicants have amended independent Claim 13 as follows:

A method of synthesizing a radio channel profile for a multi-carrier CDMA receiver receiving a signal transmitted on plural sub-carriers, comprising:

- down-converting the received signal to baseband and removing the other sub-carriers to provide different data sub-carrier baseband signals;
- correlating each of the different data sub-carrier baseband signals with a known pilot sequence to provide correlated different data sub-carrier baseband signals;
- sampling each of the correlated different data sub-carrier baseband signals;
- transforming each of the sampled, correlated different data sub-carrier baseband signals to a discrete frequency domain;
- combining the transformed baseband signals to produce a combined discrete frequency domain signal; and
- inverse transforming the combined discrete frequency domain signal to produce a composite correlation output signal.

As shown above, each of the recitations of "time" in the original Claim 13 has been replaced with the recitation of "frequency" as suggested by the Examiner. Dependent Claims 14-18 have also been amended to include the recitation of

"frequency." Accordingly, the rejections of Claims 13-17 under § 112, first paragraph have been overcome and are respectfully requested to be withdrawn.

Applicants have also added new Claim 31 which recites in-part:

down-converting the received signal to baseband and removing the other sub-carriers to provide different data sub-carrier baseband signals;
correlating each of the different data sub-carrier baseband signals with a known pilot sequence to provide correlated different data sub-carrier baseband signals;
sampling each of the correlated different data sub-carrier baseband signals; and
combining the correlated different data sub-carrier baseband signals to produce a combined signal.

As shown above, the recitations of new Claim 31 will be understood to include either frequency or time-based operation used to combine different data sub-carrier baseband signals according to some embodiments of the invention. As discussed below in greater detail, these recitations are not disclosed or suggested by the cited reference and are therefore patentable for at least the reasons discussed herein.

Dent is not prior art under § 103 as a matter of law.

All claims stand rejected under § 103 over various references in combination with U.S. Patent 6,507,602 to Dent ("Dent"). *Official Action*, pgs. 3-12. Applicants respectfully traverse the rejections as Dent is not prior art under § 103 because Dent and the claimed invention were commonly owned by Ericsson, Inc. at the time the invention was made; and the present application was filed after November 29, 1999. In particular, § 4807 of the American Inventors Protection Act of 1999 amended § 103(c) to recite in-part:

subject matter developed by another person, which qualifies as prior art only under 1 or more of subsections e, f, or g of § 102 of this title, shall not preclude patentability under this section where the subject and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

§ 4807 further states that the amendment shall apply to any application for patents filed on or after the date of the enactment of this act (November 29, 1999). S 1948

I.S. § 4807. Accordingly, as Dent and the present invention were commonly owned at the time that the present invention was made, Dent cannot be relied on as prior art in an obvious rejection of the present application as a matter of law because the present application was filed on July 5, 2000 (i.e. after November 29, 1999). Thus the rejection of the claims under § 103 relying on Dent is improper and should be withdrawn.

Independent Claims 1, 7, 11, 13, 19, and 25 are Patentable.

Claims 1-11 and 19-30 stand rejected under 35 U.S.C. § 103 over U.S. Patent No. 6,097,712 to Secord, et al. ("Secord") in view of U.S. Patent No. 6,507,602 to Dent ("Dent"). *Official Action*, pg. 3. As discussed above in detail, Applicants respectfully traverse these rejections as Dent is not a prior art reference under § 103 as a matter of law and, therefore, the above rejections should be withdrawn.

Applicants further submit that Secord also does not disclose or suggest all the recitation of the independent claims. For example, amended independent Claim 1 recites in-part:

 a plurality of down-converters down-converting the received signal to different data baseband signals;

 a delay and channel estimator correlating at least one of the different data baseband signals with a single wideband pilot signal, the single wideband pilot signal comprising more than one of the known pilot sequences, to produce an estimate of channel gain and multi-path delay; and

 a plurality of demodulators, one for each of the plural sub-carriers, and operatively coupled to the delay and channel estimator, each demodulating one of the different data baseband signals using the estimate of channel gain and multi-path delay.

Independent Claims 7, 11, 13, 19, 25, and 31 include similar recitations.

In some embodiments according to the invention, as shown for example in Figs. 4 and 5 of the present application, the baseband filters 42-1, 42-2, and 42-3 each filter a different one of the baseband sub-carrier signals as indicated by the respective dashed region of interest shown. For example, baseband filter 42-1 is configured to pass the baseband sub-carrier signal that corresponds to the region of interest shown in 42-1, whereas the baseband filter 42-2 is configured to pass a different data baseband sub-carrier signal (i.e., a second baseband sub-carrier signal that includes

different data from the first baseband sub-carrier signal passed by the baseband filter 42-1). Furthermore, the third baseband filter 42-3 is configured to pass yet a different one of the baseband sub-carrier signals. Accordingly, each of the baseband sub-carrier signals includes different data.

In contrast to the recitations of the amended independent claims, Secord discusses the transmission and reception of the same signal (*i.e.*, same data) on three different sub-carriers. For example, Fig. 1 of Secord shows a transmitter where a data signal $x(k)$ is transmitted using three different sub-carriers to produce the signals A, B, C shown in Fig. 5 of Secord. Further referring to Fig. 5 of Secord, the signals A, B, and C are demodulated by the multipliers 52 using the same random sequence $C(i,k)$ to provide the same baseband signal in the receiver shown in Fig. 5. Accordingly, as understood by the applicants, the baseband signals produced by the multipliers 52 in Fig. 5 of Secord each include the same data used to produce the three sub-carrier signals in Secord. Accordingly, Secord does not disclose or suggest, for example, down-converting the received signal to different data baseband signals in correlating different data baseband signals with a single-wide band pilot signal as recited in the amended independent claims. Accordingly, amended independent claims 1, 7, 11, 13, 19, and 25 are patentable over Secord.

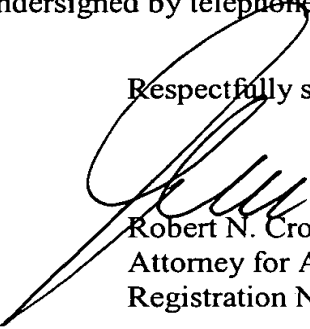
Applicants further submit that the other cited references (including U.S. Patent No. 6,335,922 to Tiedemann, Jr. et al. and U.S. Patent No. 5,481,570 to Winters) also do not disclose or suggest at least the recitations of the amended independent claims discussed above. Furthermore, the remaining claims which depend from the above-amended independent claims are also patentable for at least the same reasons.

Applicants have also amended several of the independent claims to further clarify that in some embodiments according to the invention, the single-wide band pilot signal can include more than one of the known pilot sequences, rather than all of the pilot signals. It will be understood, however, that although more than one pilot signal may be used in some embodiments according to the invention, in other embodiments, the single-wide band pilot signal can include all of the known pilot sequences.

CONCLUSION

Applicants have amended the independent claims to further clarify the patentable subject matter recited therein and further distinguish the recitations thereof from the cited references. Applicants have shown that Dent is not a valid reference for use in a rejection under section 103. Applicants have also amended the specification and provided new formal drawings as requested by the examiner. Accordingly, all issues raised in the Official Action have been addressed and, therefore, Applicants respectfully request the withdrawal of all rejections the allowance of all claims in due course. If any informal matters arise the Examiner is encouraged to contact the undersigned by telephone at 919-854-1400.

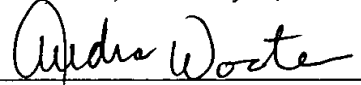
Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on February 26, 2004.



Audra Wooten